

**Training Manual for State Environmental Code 1995**  
**Chapter 1**  
**INTRODUCTION**

This section contains an introduction to the problem of sewage disposal from the public health, environmental, economic and political standpoints. Diseases associated with sewage and sewage-contaminated water will be discussed. The effects of sewage on the environment and the magnitude of the problem in Massachusetts will also be discussed. Title 5 of the State Environmental Code will be presented as Massachusetts' answer to the problem of the disposal of sewage in cities and towns where a public sewerage system does not exist, or where a connection to an existing public sewer is not practical. Finally, the role of the local board of health, as the major political subdivision with authority and responsibility for the control of the installation and maintenance of individual sewage disposal systems will be examined.

**SUGGESTED READING ASSIGNMENTS:**

The State Environmental Code, Title 5: Standard Requirements For The Siting, Construction, Inspection, Upgrade, and Expansion of On-site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage (copy provided in the Training Manual Appendix).

Legal Handbook for Boards of Health, Conservation Law Foundation of New England, Inc., 3 Joy Street, Boston, MA 02108 (see Chapter 1-4).

Guidebook for Massachusetts Boards of Health, Mass. Department of Public Health, 150 Tremont St., Boston, MA 02111.

**SESSION OBJECTIVES:**

By the end of the session, the trainee will:

- A. Have an understanding of the public health and environmental reasons for the disposal of sewage in a sanitary manner, and
- B. Be aware of the considerable authority and responsibility, mandated to local boards of health, under Massachusetts General Laws, Title 5 of the State Environmental Code and any regulations promulgated by the local board of health.

### **SEWAGE AS A PUBLIC HEALTH PROBLEM**

Lemuel Shattuck, in his *Report of the Sanitary Commission of Massachusetts* in 1850, recommended that a local Board of Health be appointed to every Massachusetts city and town, which "will be required, generally, to carry into execution, within their own town, the sanitary laws of the State, and, as far as possible, prevent disease, and raise the standard of public health to the highest point...." In the bill submitted to the legislature by the Commission, the board of health would have responsibility for making rules and regulations "for the construction and management of sinks, ash-pits, cesspools, drains and common sewers; and for the removal of house dirt, offal, night soil, street dirt and other filth."

The remarkable thing about Lemuel Shattuck's historic report is that it was written more than a quarter century before the work of Louis Pasteur and Robert Koch corroborating the germ theory of disease. During the nineteenth century and back through the Middle Ages, epidemics of typhoid fever, cholera and dysentery spread through much of the world claiming hundreds of thousands of lives. These diseases were transmitted through drinking water contaminated with human feces. Since the science of bacteriology had yet to be developed, the mere separation of sewage from water was hardly a consideration, let alone the sanitary disposal of sewage and the treatment of water supplies.

The development of sanitary sewage disposal and water treatment techniques and facilities in the early part of the twentieth century checked the spread of water-borne diseases in the United States and markedly reduced the overall morbidity and mortality rates. Much of the reduction in illness and death and the increased life span during that period can be attributed to these environmental controls rather than to improvement in medical care.

While major water-borne diseases such as typhoid and cholera are not an imminent threat in the United States today, we are still concerned with other infectious diseases transmitted through water contaminated by human excreta. Organisms, transmitted from person to person by the route of water contaminated by human feces, range from viruses to bacteria to protozoans. The illnesses and the causative organisms include, but are not limited to: Hepatitis A, a virus; Bacillary Dysentery or Shigellosis, the *Shigella* bacteria; and Giardiasis, the protozoan *Giardia lamblia*. Figure 1-1 illustrates potential pathways of exposure originating from a typical on-site sewage disposal system.

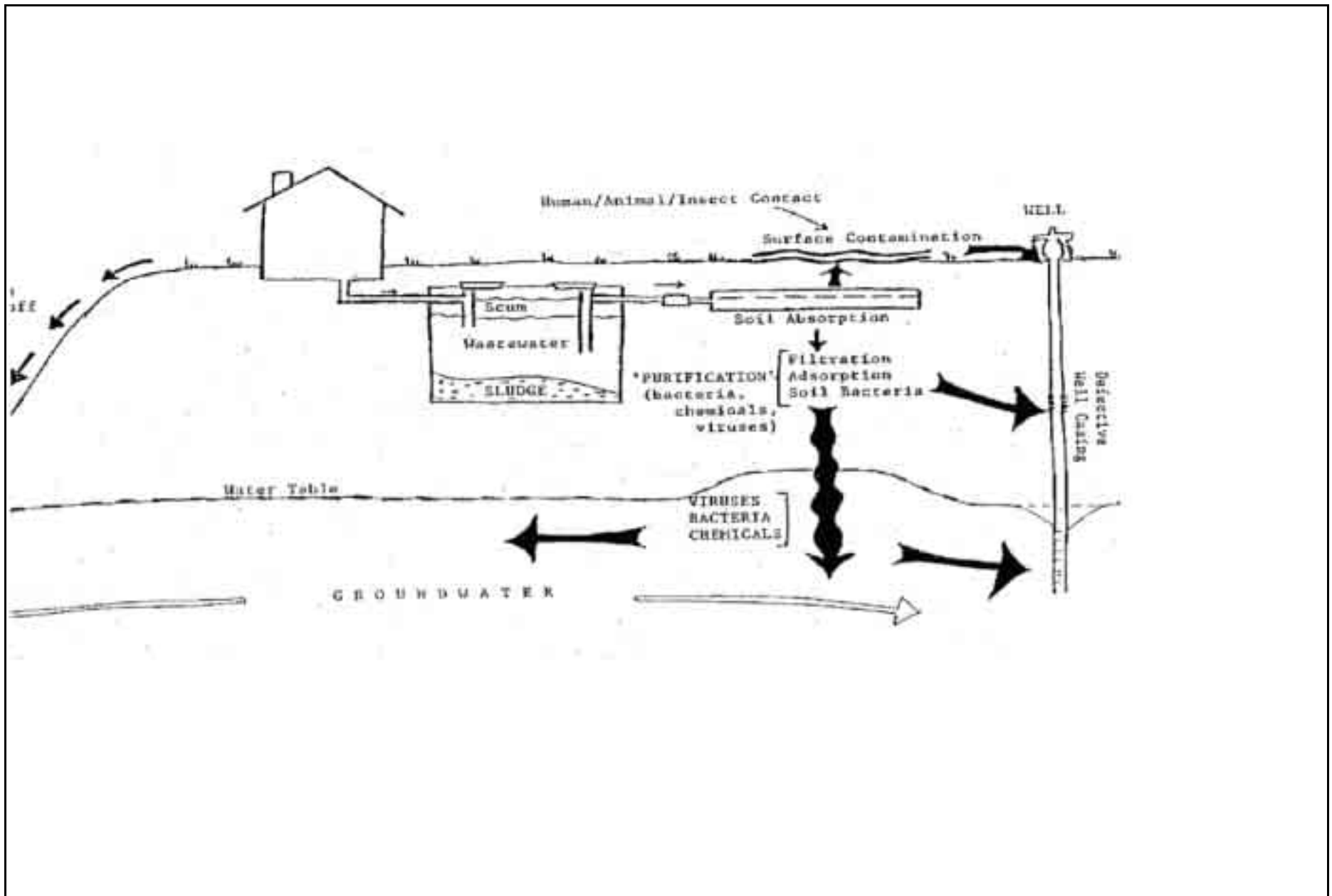


Figure 0-1: Potential Pathways of Exposure  
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The work of Lemuel Shattuck is of monumental importance not only to Massachusetts but also to public and environmental health worldwide. He set the stage for local authority and responsibility, through a board of health, for the control and management of public health and the environment. The control of sewage is a public health and environmental responsibility for the following reasons:

- a. Pathogenic organisms from an infected individual may be transferred in sewage to food and water consumed by a non-infected person or animal thus causing new infection and disease;
- b. Pathogenic organisms may be transferred to persons and animals by insects and other vectors with access to untreated or poorly treated sewage;
- c. Pathogenic organisms can be transferred to persons in bathing waters contaminated by sewage containing such organisms; and
- d. The sight and smell of human sewage, from a defective sewage disposal system, or lack of such system, is offensive to the senses and, therefore, a public health nuisance.

### **ENVIRONMENTAL AND OTHER CONSIDERATIONS**

While the primary reason for the safe disposal of sewage is to prevent the spread of infection and disease, there are important environmental, economic and aesthetic reasons for its control. Untreated, or improperly treated sewage will:

- (a) Contaminate our groundwater and other water supplies with organic and inorganic matter to make it unsuitable, not only for drinking water, but for commercial, industrial and recreational purposes at great economic loss;
- (b) Pollute our harbors, rivers, lakes, ponds and streams resulting in great economic detriment to fishing and shellfish industries and damage to sport fishing areas;
- (c) Upset the biological balance between plants and animals in our lakes, ponds, and streams, resulting in the overgrowth of algae, noxious weeds and other unsightly and odorous conditions; and
- (d) Foul our coastline and the shores of rivers, ponds and lakes to rob them of their beauty and sources of inspiration, recreation and habitation.

## **MAGNITUDE OF THE PROBLEM OF SEWAGE DISPOSAL IN MASSACHUSETTS**

Approximately thirty percent of the homes in Massachusetts are currently using individual subsurface sewage disposal facilities to dispose of sewage on the property. In addition, there are an unknown number of commercial and other small buildings, such as restaurants, nursing homes, garages, offices and light manufacturing plants without access to a public sewer system, and, therefore, using this type of sewage disposal.

Large numbers of homes are being constructed in Massachusetts, many of which are located in suburban and rural communities without a public sewerage system, or in sections of a partially sewered city or town where no public sewer has been extended. Because of the high cost of financing and building a public sewer, a decrease in available federal and state funding for these types of projects, and in light of "Proposition 2-1/2" it appears that few communities will undertake this costly public works program in the absence of major sewage, drainage, or water pollution problems.

## **TITLE 5 - A SOLUTION**

Local boards of health have had responsibility for the control of household sewage dating back to the early enactment of laws giving powers to such boards. Existing legislation in Massachusetts, giving boards of health responsibility for making and enforcing regulations relative to house drainage, adopted in 1937, is contained in M.G.L., Chap. 111, Sec. 127. Rules and regulations promulgated under this section often varied widely from one community to another. Some were extremely comprehensive, while others were very simple and left wide discretion to the inspector. Engineers, contractors and the public were often confused by the vast differences in the regulation of individual subsurface sewage disposal systems between two adjoining towns, sometimes pertaining to lots on the same street. This same situation also applies to rules and regulations governing other matters coming under the jurisdiction of the local board of health and became the basis for the development of the State Sanitary Code and the State Environmental Code.

The Massachusetts Department of Public Health had responsibility under M.G.L., Chap. 111, Sec. 17, adopted in 1937, to consult with and advise local boards of health on water supplies, drainage and sewage. The Massachusetts Department of Public Health, acting under M.G.L., Chap. 111, Sec. 127A, promulgated rules and regulations for the control of individual sewage disposal systems, in 1962, which were known as Article XI of the State Sanitary Code. Authority for the control of sewage disposal was subsequently transferred from the Department of Public Health to a newly created Department of Environmental Quality Engineering (DEQE) by the Legislature. The Department of Environmental Quality Engineering, with authority to develop a State Environmental Code, promulgated "Title 5 - Minimum Requirements for the Subsurface Disposal of Sanitary Sewage" in 1977. Title 5 of the State Environmental Code replaced Article XI of the State Sanitary Code and became the official regulation for the statewide control of individual subsurface sewage disposal systems. Title 5 was revised in 1978 and more recently in September of 1994.

Title 5 of the State Environmental Code is contained in the Code of Massachusetts Regulations

(CMR) with the code identification 310 CMR 15.000 and a copy is included in the appendix of this manual.

The purpose of Title 5 is to provide a comprehensive body of standards, which if fairly administered and strictly enforced, will provide protection of the public health and the environment in all cities and towns of the Commonwealth where circumstances require the use of individual systems for the disposal of sanitary sewage. Title 5 is intended to bring uniformity in the manner in which subsurface sewage disposal systems are located, designed, constructed and inspected for the benefit of home owners, engineers, sanitarians, contractors and the public in general. Title 5 is a body of regulations based on proven scientific principles and tested methods for the design, construction, maintenance and repair of individual subsurface sewage disposal systems under a wide range of conditions likely to be found throughout the Commonwealth.

In general, full compliance with the code is presumed by the Department (renamed the Department of Environmental Protection) to be protective of the public health, safety, welfare, and the environment. However, boards of health may enact more stringent regulations in accordance with M.G.L. c.111, s.31 and M.G.L. c.21A, s.13.

### **AUTHORITY AND RESPONSIBILITY OF LOCAL BOARDS OF HEALTH**

Boards of health have the authority and the legal responsibility to enforce Title 5 of the State Environmental Code. Board members and their agents should read and become familiar with Title 1 (310 CMR 11.00) and Title 5 (310 CMR 15.000) and also with M.G.L., Ch. 21A, Sec. 13, M.G.L., Ch. 111, Sections 17, 27, 27A-C, 30, 31, 31A-E, 122, 124, 125, and 125A. Additional sections of importance include M.G.L., Ch. 111, Sec. 127 (referenced below), 127A, 127P, 127B and 129. Statutes containing other relevant provisions include M.G.L. c.131, Sec.40, and M.G.L. 83, Sec.11.

Board members may delegate authority to agents to enforce Title 5, however, the ultimate responsibility still lies with the Board. Boards of health also have authority to promulgate rules and regulations relating to house drainage and the disposal of sewage. Of course, such regulations must be reasonable and in no instance less stringent than the provisions of Title 5. Section 15.003 should be consulted relative to how the Boards should coordinate these activities with DEP.

Once a board has decided upon the need for a local regulation, the board has the responsibility to ensure that the regulation is well thought out, properly worded and based on a local need not covered by Title 5. However, in the opinion of DEP, enforcement, proper care and maintenance, rather than more stringent regulations, are, in general, the best means to assure that such systems will serve the purpose intended and prevent danger to public health and the environment.

Boards of health have a responsibility to be current in their knowledge of city and town by-laws and regulations, which may relate to decisions of the board, e.g., wetlands protection, and watershed or aquifer protection areas.

**Summary of State Laws  
Giving the Department of Environmental Protection  
and Local Boards of Health Authority to Adopt  
Regulations Related to Sewage Disposal**

MASSACHUSETTS GENERAL LAWS, CHAPTER 21A, SECTION 13 (MGL  
Ch 21A, S13)

The State Environmental Code is established under this legislation, which states that the Department of Environmental Protection shall adopt and also amend regulations that deal with the disposal of sewage. The Department has adopted "The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade, and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage" under this chapter and section. Title 1 of the State Environmental Code, "General Application and Administration," was also adopted under this chapter. In addition, this provision states that local boards of health shall enforce the Code in the same manner in which local health rules and regulations are enforced and the Department may also enforce the Code if boards of health fail after a reasonable period of time to take such enforcement action.

TITLE 5 is contained in Chapter 310, Section 15 of the volume of regulations adopted by the Commonwealth and known as the Code of Massachusetts Regulations (CMR). Title 5 has thus been assigned the number 310 CMR 15.000 in the Code of Massachusetts Regulations.

TITLE 1 of the State Environmental Code has been assigned the number 310 CMR 11.00 of the Code of Massachusetts Regulations. This regulation makes provision for the adoption of regulations by local boards of health more stringent than those contained in the code, to promote and protect the health and well being of the locality under its jurisdiction in accordance with MGL. c.111, §31 and MGL. c.21A §13.

MASSACHUSETTS GENERAL LAWS, CHAPTER 111, SECTION 31 (MGL  
Ch 111, S31)

Boards of health may make reasonable health regulations under this section. Rules and regulations more stringent than those contained in Title 5 of the State Environmental Code may be promulgated under this section provided that the board of health states at the required public hearing the local conditions which exist or the reasons for exceeding the requirements of Title 5. Prior to adoption of regulations made under this section regarding the disposal of sanitary sewage, the board of health is required to hold a public hearing, notice of which shall be published in a newspaper of general circulation in the Town in two successive weeks or, if there is no such newspaper, then by posting the notice in a conspicuous place in the town hall not less than 14 days in advance of the hearing. Boards of health shall file with DEP attested copies of sanitary codes and all rules, regulations and standards which have been adopted, and any amendments and additions thereto, for the maintenance of a central register pursuant to Section 8 of Chapter 21A.

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Under this section of the General Laws, local boards of health may also adopt regulations for the public health and safety relative to house drainage. See Holden v Holden Suburban Supply Co. (1961) 343 Mass 187, 178 NE2d 74 for a case which holds that a town may adopt reasonable regulations relating to sewage disposal either under the authority of MGL Ch 111, §31, as summarized above, which provides in general for health regulations or under §127 which authorizes regulations specifically relating to house drainage, or under both.